



# The Inventor's Journey FROM IDEA TO MARKET

## Dr. Ruddle describes the invention process from the idea to developing a market-version product

Over the past two decades, I have taken several ideas through an invention process that ultimately led to market-version products used daily by international dentists. To take a novel idea through this process requires imagination. Tomorrow-makers start with the end in mind, imagining their concept working in clinical practice. Inventing a useful product is a serious endeavor and can require a rigorous educational journey. Be prepared to “go to school” and learn about material science, machining, nanotechnology, electronics, and the multiple fields that encompass engineering. Importantly, the distinction of a pioneer versus a fast follower can be as simple as having a passionate desire, strong work ethic, and unwavering perseverance.

I am frequently contacted by dentists who state they have interesting ideas and want my coaching on a roadmap to follow that identifies the steps to move an idea through a process that results in a market-version product. The following will describe a pathway that is intended to guide you on your journey as an inventor.

### Relevant idea

Oftentimes, an inventor dentist will express premature enthusiasm for any given idea. Before popping the cork on your favorite bottle of champagne, it would be wise to ask a few questions: Is my idea relevant? Will my product have broad market acceptance? Can manufacturing technically produce the concept I envision? Any new market-version product should provide obvious advantages over prior art and provide evidence to support its use. Additionally, the product you envision should be of high quality, affordable, and easy to integrate into routine chairside dental procedures.

### Patent application

A patent attorney can provide advice and perform an online search, related to your area of interest, for existing or pending patents. When filing your patent with the US Patent & Trademark office, it can be helpful to have a *Proof of Concept*. Even if crude, you can put together a working prototype that demonstrates or proves your idea. Remember, at this point, your prototype does not have to be scaled properly or look good. A word of caution: do not file your patent application for any given product too early, as it is common for your concept to evolve and potentially change. You do not want to attain a patent that ultimately does not protect how your concept actually works or is manufactured.

### Non-disclosure agreement (NDA)

If you do not have a patent, yet need to discuss your concept with other parties, then you need an NDA to protect your intellectual property (IP). Generally, individuals who work in new product development can provide a boilerplate NDA. Alternatively, a patent attorney can either draft a simple NDA or review an existing NDA to ensure it adequately protects you. When both parties have signed the NDA, then you can fully explain your IP and explore aspects of product development.

### Private development

You will need to find the right people with the best expertise and experience who can help you make your idea into a viable working prototype. This could be a large dental company, or you could assemble your own R&D team to help you design, develop, and create working prototypes. However, as an owner, you will need to understand the financial burden, manufacturing pathway, packaging, distribution, fulfillment, marketing, and sales.


The goal during product development is flawless execution, solving problems as they occur. In 1995, Drs. John West, Pierre Machtou, and I got together with Dentsply Maillefer and began to design what became known as the ProTaper® File System. For more than 6 years, we tried countless prototypes and field-tested these files exhaustively. Our design parameters were based on responses from more than 20,000 international dentists who reported what they wanted in a NiTi rotary file system. We were trying to improve safety, efficiency, and simplicity. Along the developmental journey, it is critical to be flexible, open-minded, and willing to adjust to reality as it unfolds.

### Regulatory

All medical-grade products require varying degrees of regulatory scrutiny. Suffice it to say, considerable regulatory requirements must be met to legally sell any product in the marketplace. Going through the regulatory process can be costly, time consuming, and a very humbling experience. However, dental companies are familiar with the process and will usually assist you if they are the exclusive manufacturer and/or distributor of your product.

### Critical pathway

Many years ago, I visited my former patient, Chairman Kunghee Lee, the owner of Sansum Electronics, internationally based in Seoul, South Korea. One critical thing I learned from Chairman Lee was the importance of having a plan, writing it down, and posting it in a conspicuous place where you are confronted with it daily. This plan should identify a starting point, each step along the critical pathway, your position at any given moment, and an ending goal. Importantly, each step must have a by-when, so there is accountability along the developmental journey.

Everybody has ideas, but not everybody has ideas and the characteristics required to move these ideas to successful market-version products. Passion, dedication, commitment, sacrifice, perseverance, and a little good luck wins the game. Keep these qualities on your radar. 



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